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ABSTRACT

The purpose of this replication study (cf. McCartney, 1980) was to determine the extent to which elements of scripts are integral aspects of young children's comprehension and recall of stories. McCartney found that kindergarten and second grade children recalled scripts presented to them. The older children in her study remembered more of the "filler" items while the younger children recalled main events but still maintained the sequence as it had been presented to them. In the present study the generalizability of the script model was investigated among children younger than those in the McCartney study. Twenty-four 3-year-olds and twenty-four 4-year-olds enrolled in a private Presbyterian preschool were randomly selected and assigned to one of two groups. Both groups heard a story about typical events in the life of a child. One group heard a story with a dinner-time emphasis, the other heard a story with a bed-time emphasis. Each story consisted of 21 sentences totaling 101 words. The ratio of the emphasized part of each script to unemphasized part was two to one. Children's recall responses were analyzed with the "script" model described in McCartney (1980) according to procedures outlined by Mandler and Johnson (1977). Scores consisted of the number of items recalled correctly by the children. Results are discussed. (Author/RH)

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Recall of Scripts by Preschool Children

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Abstract

The purpose of this study was to determine how integral scripts are to young children in their comprehending and recalling of stories. Twenty-four three year olds and twenty-four four year olds were randomly selected and assigned to one of two groups. One group heard a story with a dinner-time emphasis, the other heard a story with a bedtime emphasis. Recall responses were analyzed with the "script" model. Results of this study indicated that even these very young children used logical, consistent sequences in recalling what they heard. Major or "core" events were those recalled by both the three and four year olds in the study. More research is needed to determine how "scripts" assist young children in their cognitive development.

Recall of Scripts by Preschool Children

How do we comprehend what we see and hear? How do we make sense of what we observe in our environment? One answer to how we perceive and then categorize what we see, hear and observe is schema theory. Schema theory is a "recently resurrected" theory in cognitive psychology (Armbruster, 1976). It can be traced back to Bartlett in 1932. There has been a recent wave of interest in schema theory particularly in how this theory could be related to comprehension, organization of thought, and cognitive development. Even though those who support schema theory have been dubbed "schema schemers" (Tuinman, 1980), notable others (Anderson, Spiro, and Anderson, 1977; Adams and Collins, 1977; Pichert and Anderson, 1977; and Rumelhart, 1980) support it vehemently. When one considers all the facts and who is stating them schema theory does appear to have great potential for helping educators grasp an understanding of how children can learn.

The schema that a person has about a subject can be described as his "cognitive template" (Armbruster, 1976). This cognitive template is similar to Ausubel's "intellectual scaffolding" (1978). In developing a schema, a person develops a framework of the idea and then fills in, or "instantiates" the vacant slots with information pertaining to that schema.

Current research has shown that the use of schemata in instruction can help children to learn concepts (Armbruster; Milligan, 1979). If this is indeed so, then research into schemata and how children utilize their schemata appears definitely to be a high priority item.

We can have schemata about subjects we have learned about vicariously or about events we have actually experienced. The schemata we have for the everyday, routinely occurring experiences we have (e.g., eating at a restaurant) have been called "scripts" (Bower, Black and Turner, 1979; Schank and Abelson, 1977).

Can we determine how well a person understands scripts that have been presented? Recalling events in a story has proven to be a viable means of estimating understanding. Nelson (1979) found that even very young children easily recall the main events in a story. Children develop schemata about everyday events very early in life (Schank and Abelson, 1977). As children mature they are better able to fill in the areas between the main events. They instantiate with filler items and add to the data base they possess for the schema.

Will the events recalled by very young children be in correct temporal order? Fraisse (1963) and Piaget (1948) have stated that preoperational children have little concept of time and that all past is "yesterday" to a young child. Baker (1978) also found this to be true although the subjects in his study were given deliberately confusing input concerning the stories.

Brown (1975), Brown and Murphy (1975), and McCartney (1980) have found that even very young children are perfectly capable of retaining correct order and time sequence in their recall of stories. McCartney found that kindergarten and second grade children recalled scripts presented to them. The older children in her study remembered more of the "filler" items while the younger children recalled main events but still maintained the sequence as it had been presented to them.

Would the results be the same if the subjects were younger? This study was an effort to investigate the generalizability of the script model to three and four year old children. This study was a replication of the McCartney study. The only variable changed for this study was the age of the subjects.

Research Questions

The research questions were:

How well do four year old children recall a script presented to them?

How well do three year old children recall a script presented to them?

Will a script with a dinner emphasis be recalled better than one with a bedtime emphasis?

Will boys comprehend and recall a script to the same degree as girls?

Method

Population. The population is this study were children enrolled in the Christian Preschool, Westminster, Maryland. The preschool is private, a ministry of the First United Presbyterian Church, Westminster. The preschool is open to anyone in the community. The children are from white,

middle class homes. Parents pay tuition for the children and transport them to the preschool themselves. There are both morning and afternoon sessions. There are separate classes for three and four year olds with one vertical (three and four year olds mixed) afternoon class. The four year old classes meet three half days a week. The three year old classes and the vertical group meet two half days a week.

Sample. The sample chosen for this study were from the entire population (N=88) of the Christian Preschool. Twenty-four three year olds and twenty-four four year olds were randomly selected and assigned to one of two treatment groups. Mean age of the same of four year olds was 4.3 with a standard deviation of 3.7 months. Mean age of the sample of three year olds was 3.7 with a standard deviation of 3.7 months.

Treatment. The story materials used in this study were reconstructed from information in the McCartney study. There were two stories about typical events in the life of a child. Boys heard a story about a boy named George. Girls heard the same stories with a girl, Rose, as the main character.

One of the stories, (see Appendix, Table 3), had a dinnertime emphasis, the other had a bedtime emphasis. There were the same number (21) of sentences in each of the stories. There were also the same number (101) of words in each of the stories. Ratio of emphasized part of each script to unemphasized part was two to one. Filler events and items made up the extra amount in each of the stories. Two two stories contained identical core items.

The children in the sample were called individually to a secluded part of the preschool area where they were interviewed by the researcher or an assistant who had been trained in the procedure. The children in this preschool are accustomed to being called to specific areas for special activities or projects. In the individual interviews each child heard a prepared script of instructions. This was to be certain that each received the same stimulus. The children were told they would be recalled later. They then heard the appropriate script. When the story was over, they were permitted to return to the area from where they had been called. After a two minute interpolated pause, each of the children was called back to the secluded area. Their retold stories were tape recorded.

Data gathering. All data gathering was done in one school day for each age group. On those days, extra adults were present in the preschool rooms to avoid contamination of the data by the children discussing the stories among themselves. Story presentation was counterbalanced so that each adult interviewer read the two stories an equal number of times.

Scoring

When all the interviews were completed, they were transcribed. The story given by each child was numbered with only chronological age, script, and sex information retained to maximize anonymity. The stories were scored by the script model described in the McCartney study according to the procedures outlined by Mandler and Johnson (1977); (see Table 3). Scores consisted of the number of items recalled correctly by the children.

When all the scoring was completed, a random sample of eight student interviews was scored by an independent adult judge (a fellow doctoral student). Researcher scorings and independent adult judge scorings were in agreement 95% of the time. Therefore, scorings by the researcher were presumed to be as accurate as possible and the data were analyzed by comparative statistical procedures.

Findings

The scores for each group of subjects was compiled and compared by age, script, and sex. Means and standard deviations were then compared for each of the groups.

Insert Table 1 about here

The scores of the correct responses were then subjected to a three way (age x script x sex) ANOVA. Results of this statistial procedure indicated that there was no significant differences among these three groups ($F=1.55$, $p<.05$). T-tests of related means were then done among the same three groups (age, script, and sex). Results of the t-tests indicated no significant difference between the dinner and bedtime scripts ($t=.179$, $p<.05$) and no significant difference between the boys and girls ($t=.67$, $p<.05$). There was a significant difference between the three and four year olds ($t=2.4$, $p<.05$).

Insert Table 2 about here

In answer to the research questions, the scores from this study indicated that, from a possible score of 21:

Four year olds recalled a mean of 4.88 events correctly.

Three year olds recalled a mean of 3.50 events correctly.

The dinner emphasis script was recalled with a mean of 4.54 correct responses. The bedtime script was recalled with a mean of 3.38 correct responses.

Boys recalled a mean of 4.40 correct responses. Girls recalled a mean of 4.00 correct responses.

Analysis of the recalled events of the emphasized parts of the script versus the unemphasized indicated that in the dinner script, the ratio was one to one. In the bedtime script, the children recalled 1.5 times as many of the emphasized parts as the unemphasized parts of the story.

Discussion

The children in this study recalled core events predominately. This is consistent with the findings of McCartney, and Nelson. These children also recalled events in the same sequence as they had been presented to them and not necessarily in a sequence that would be usual for their own lives (e.g., watching television before dinnertime). These children's recall of events as given to them indicated that their responses were not as egocentric as previous writers (Fraisse, 1963 and Piaget, 1948) had believed.

The personal items added by the children in their stories can be attributed to logical reasons. Some said "blue pajamas" instead of "green pajamas". One added "sayed her prayers" to the bedtime script. One boy

added that "he went outside and played". Another child said, "he jumped out the window and ran away". Two of the much younger subjects gave no response at all.

The stories given by the subjects were extremely brief. From a possible 21 parts to recall, their means were rather low (4.88 for the dinner script, 3.50 for the bedtime script.) This may have been due to the fact that no probes were given during the recalling period. Since these children were so young, establishing useful probes may have been of assistance to them in the level and number of their responses. It would be interesting to do a study with standardized probe questions to see if the results would differ when probes are allowed.

The stumulus stories were rather long for such young children to merely listen to. Perhaps adding pictures of integral events would change the amount or depth of recalls. Perhaps having the children act out the story or walk through it as it is told to them or as they retell would give an added stimulus that would increase the amount and level of their responses. This could be studied in a formal study or in daily interactions with these children.

The sentences recalled with greatest frequency were #21 (a core event), #9 (a core event), #11 (a core main event), #17 (a core main event), and #15 (a core event). The four year olds recalled these major items in this same order. The three year olds recalled these five events in this order, #21, #11, #17, #9, and #15.

There are many possible instructional implications from the results of this study. It has been established that young children recall and understand main parts of stories quite well. However, they do not do well in recalling filler items. Teachers of young children could try to help their young students develop concepts of the filler items to help them instantiate their schemata a littler fuller. Young children could be asked to tell what they did first at school, then next, then what, etc. They could be asked to recall what they enjoyed the most, what happened before or after that event. When emphasis on these minute details of their everyday events, children could be helped to build their data bases and fill in the slots of their scripts.

Young children can probably do more sequencing than the publishers of commercially packaged sequence cards would lead teachers to believe. Teachers of young children should take their cue from this and create their own sequence items, using more pictures or utilizing auditory skills in greater depth with finer details of sequencing items.

If teachers of young children would peruse the literature concerning results of educational research or if supervisors would act as dispensers of such knowledge, then activities that will truly stimulate schemata development will become everyday educational happenings. This is the only way that research will really be worthwhile; when its results are used for better education for children in everyday school situations.

Conclusions

Young children can recall items that are core or main events of a script. They tend to omit the filler items and concentrate on the major scaffolding of the story that has been presented to them. If teachers of young children help them to build onto these scaffoldings, their children will become better storers of information and better comprehenders of the world around them.

Since schemata can be of help in learning concepts and principles, more research is indicated into exactly how young children develop their schemata or scripts. Hopefully, more research in this area will be done and be utilized to provide better educational experiences for all young children.

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Table 1

Means and Standard Deviations

of Correct Responses Given

by Subjects

	n	$\bar{X}$	S
Grouped by age			
Four year olds	24	4.88	1.80
Three year olds	24	3.50	2.04
Grouped by script			
Dinner emphasis	24	4.54	1.56
Bedtime emphasis	24	3.83	2.39
Grouped by sex			
Boys	22	4.41	2.36
Girls	26	4.00	1.72

Total amount possible = 21

Table 2

T-tests of Related Means

Between Groups

	n	t
Fours versus threes	48	2.5*
Bedtime versus dinner	48	.179
Boys versus girls	48	.67

*Significant at the $p < .05$ level

Table 3

Story Events

In dinner emphasis story	In bed emphasis story	Story Event	
X	X	(1)	Rose enjoyed spending night time with her parents
X	X	(2)	Tonight would be a lot like other nights.
C(A)	C(A)	(3)	When Rose's mother yelled, "Dinner time,"
C	C	(4)	Rose was playing in her bedroom.
F		(5)	Rose ran into the kitchen
F		(6)	and asked, "What's for dinner?"
F		(7)	Rose's father told her they were having her favorite, spaghetti.
C	C	(8)	Then she washed her hands in the bathroom.
C	C	(9)	Rose's mother served them all a dish of spaghetti
F		(10)	and her father poured the milk.
C(M)	C(M)	(11)	Then they all started eating their dinner.
F		(12)	Rose's parents asked her what she had done at school that day.
F		(13)	Then her parents talked about their day at work.
F		(14)	Soon everyone had finished eating

C	C	(15)	They had chocolate cake for dessert.
C(A)	C(A)	(16)	Then Rose asked if she could leave the table.
C(M)	C(M)	(17)	After dinner, Rose and her parents watched some TV.
C(A)	C(A)	(18)	After a while, Rose's father said, "It's bedtime, Rose."
	F	(19)	"Just a little longer?" she asked.
	F	(20)	"Sorry, Rose, but you have school tomorrow"
C	C	(21)	Rose went to get ready for bed.
C	C	(22)	She put her favorite pair of green pajamas
C	C	(23)	In the bathroom she brushed her teeth
C	C	(24)	and washed her face.
	F	(25)	Then Rose's parents came to tuck her in
	F	(26)	Rose asked for a bedtime story
	F	(27)	so her mother told her one about life on a farm.
C	C	(28)	After the story, Rose's mother and father kissed her goodnight.
	F	(29)	Her father shut off the light
	F	(30)	and whispered, "Sweet dreams."

C(M,A)	C(M,A,)	(31)	Soon Rose was fast asleep.

X stands for introduction

C stands for core event

M stands for main event

A stands for anchor event, a type of core event

F stands for filler event

Appendix

Standard instruction scripts used

Instructions used to introduce the story:

(child's name), I'm going to read you a story about a little (girl-boy) named (Rose-George). There are no pictures so you must listen very carefully. After while, I'll ask you to tell me the same story. We'll record that on the tape recorder. OK? Ready?

Instructions used after reading the story:

You may go back to what you were doing before I called you here. After a little while, I'll call you back here to tell me the story.

Instructions used after the two minute interpolated pause:

(child's name), tell me that story I just told you.....